needs to be taught in small friendly doses tied to practical problems. Each analysis note presented by Doug Gause has sketches drawn by artist Pat Gause.

CONCEPTUAL PAPERS & RESEARCH ON METHODS – Study Design

PMC48

METHODS FOR IDENTIFYING CASE REPORTS OF SUSPECTED ADVERSE DRUG REACTIONS: AN EVALUATION OF THE EFFICIENCY OF ALTERNATIVE SEARCH STRATEGIES IN MEDLINE AND EMBASE

Michels SL, Ward A, Jones N
United BioSource Corp., Lexington, MA, USA

To illustrate the precision and sensitivity of identifying case reports of adverse events (AE) in MEDLINE and EMBASE, eight searching methods were created and applied to two systematic reviews of case reports. Search methods included use of indexing and text words for synonyms of AE and related terms, as well as drug, disease and study design. All eight methods contained the drug and combinations of other search strings and ranged from broad to very specific. Searches were developed for MEDLINE and EMBASE; duplicates were removed. Results from each approach were checked against a "gold standard" (GS) of case reports previously identified in two systematic reviews (75 anti-TNF agent, 57 baclofen case reports). Sensitivity and precision of each method were calculated. The broadest search, using drug terms alone, yielded over 11,000 and over 3,600 references for each systematic review topic. Sensitivity decreased as search methods became narrower; precision was consistently low (generally <6%). The search method for drug terms alone had 100% sensitivity for both systematic review topics with very low precision (<1.6%). Precision was highest when drug, disease, case report and AE were combined for baclofen (15%) with low sensitivity (26%). Of the GS articles available from MEDLINE, 7% and 18% of anti-TNF agent and baclofen case reports respectively were not indexed as case reports. Sensitive search methods able to identify relevant case reports are important, but when a sensitive search was constructed, this lead to low precision. A sensitive search method must be broad, and search both databases. Precision remains low with each combination of approaches, making accurate identification of case reports rather labor intensive. This illustration demonstrated the extent to which decisions made when developing search methods impact the comprehensiveness of reviews. Further work is on-going to confirm the generalizability of these findings to other drugs.

CANCER – Clinical Outcomes Studies

PCN1

USE OF WHITE BLOOD CELL GROWTH FACTORS AND RISK OF ACUTE MYELOID LEUKEMIA OR MYELODYSPLASTIC SYNDROMES AMONG ELDERLY NON-HODGKIN'S LYMPHOMA PATIENTS

Gruschkus SK[1], Lairson D[2], Dunn JK[3], Risser JM[3], Du XL[3]
[1]Healthcare Informatics, a service of US Oncology, The Woodlands, TX, USA, [2]University of Texas School of Public Health, Houston, TX, USA, [3]University of Texas Houston School of Public Health, Houston, TX, USA

OBJECTIVES: Therapy-related myelodysplastic syndromes and acute myeloid leukemia (t-MDS/AML) are devastating long-term complications of cancer therapy. Evidence suggests that white blood cell growth factors (CSFs) may increase risk of t-MDS/AML among patients (pts) receiving chemotherapy, possibly because they stimulate the proliferation and differentiation of hematopoietic stem cells and also interfere with apoptosis. The purpose of this retrospective study was to evaluate the association between CSF use and t-MDS/AML among a large population-based cohort of elderly non-Hodgkin's lymphoma (NHL) pts treated with chemotherapy. **METHODS:** NHL pts were identified from the Surveillance, Epidemiology, and End Results-Medicare database diagnosed from 1992 to 2002 who received chemotherapy within 12 months of diagnosis. Pts were followed from their initial chemotherapy until t-MDS/AML development, death, or end of study period (December 31, 2006). Kaplan-Meier and Cox proportional hazards analyses were used to evaluate the association between CSF use and t-MDS/AML. **RESULTS:** A total of 13,203 pts were identified. Overall, 40% (n = 5,266) received CSF. 272 (5.2%) pts receiving CSF developed t-MDS/AML vs. 230 (2.9%) who did not receive CSF (log-rank $p < 0.0001$). In a multivariable Cox regression analysis adjusting for gender, histology, stage, comorbidities, chemotherapy dates, and chemotherapy agent, CSF use was independently associated with a 53% increased risk of t-MDS/AML (HR 1.53; 95% CI 1.26–1.84). A dose-response relationship was observed, with t-MDS/AML risk increasing by quartile of CSF claims. In an evaluation of plausible biologic interactions, we found that pts receiving CSF *and* antimetabolite chemotherapy (n = 1,567 pts) had a 2.5 fold increased risk of t-MDS/AML (HR 2.49; 95% CI 1.91–3.26) vs. pts who received neither agent (p-interaction = 0.04). **CONCLUSIONS:** Our findings suggest that CSF use among elderly NHL chemotherapy pts chemo may increase risk of t-MDS/AML, even though absolute risk is low. Future studies are necessary to verify these results and to determine the clinical implications of the observed interaction between CSF use and antimetabolite chemotherapy.

PCN2

DIABETIC MEDICATIONS AND ITS ASSOCIATION WITH MORTALITY IN HOSPITALIZED CANCER PATIENTS

Nowshad G[1], Alam S[2], Shah P[3], Salahudeen A[4]
[1]University of Texas, School of Public Health, Houston, TX, USA, [2]School of Public Health, UT Houston, Houston, TX, USA, [3]Mayo Clinic,, MN, Rochester, MN, USA, [4]The University of Texas M.D. Anderson Cancer Center, Houston, TX, Houston, TX, USA

OBJECTIVES: The effect of diabetes and diabetic medications on the morbidity and mortality in hospitalized cancer patients is a serious concern. We examined the association of diabetic medications with the transfer to ICU and inpatient mortality. **METHODS:** Electronic patient records were prospectively collected in 5489 hospitalizations to UT MD Anderson Cancer Center from May 1st, to July 31st, 2006. For each patient demographic, laboratory and pharmacy data were obtained. To observe the effect of diabetic medications, we selected only diabetic patients, which were 36.3% (1991) of the total hospitalization. Descriptive and logistic regression analyses were performed. **RESULTS:** Out of 1991 hospitalizations for diabetic cancer patients, fifty seven percent were male, sixty nine percent were White with median age of sixty one. These patients were on different diabetic medications and thirty one percent were only on sliding scale insulin (SSI).After controlling for socio-demographic variables and other medications like chemotherapy, we found cancer patients who were only on SSI were more likely to be transferred to intensive care unit (ICU), (OR 2.31, CI: 1.7–3.2; $P < 0.001$) and die during hospitalization (OR 1.88, CI: 1.3–2.7; $P < 0.001$). Glucocorticoids administration was also significantly associated with inpatients mortality (OR 5.91, CI: 3.5–9.8; ($p < 0.00$)). **CONCLUSIONS:** We found strong associations between the method of administration of insulin (SSI) and transfer to ICU and inpatient mortality in cancer patients with diabetes. Drug dosage and administration in inpatient settings should be tailored to the need of the patients to optimize the medication effect and minimize the side effects.

PCN3

RELIABILITY OF CLINICIAN VS. CLINICIAN ADVERSE SYMPTOM REPORTING

Atkinson TM[1], Sit L[1], Coffey C[2], Shaw M[1], Fruscione M[1], Lavene D[1], Gönen M[1], Li Y[1], Basch E[1]
[1]Memorial Sloan-Kettering Cancer Center, New York, NY, USA, [2]University of Kansas Medical Center, Lawrence, KS, USA

OBJECTIVES: Adverse symptom reporting is essential in clinical trials and drug labeling to assess and ensure patient safety. The standard approach to collecting adverse symptoms in cancer trials is clinician reporting using the Common Terminology Criteria for Adverse Events (CTCAE), which rates symptoms based upon descriptive clinical criteria. Despite the importance of this information, the reliability of these ratings has not been verified. At Memorial Sloan-Kettering Cancer Center, patients are routinely evaluated via CTCAE items by a clinician in an office suite, and again shortly thereafter by a second clinician in a chemotherapy suite, with no information passed between clinicians. **METHODS:** To measure the reliability of these evaluations, a retrospective analysis of medical charts was completed in a sample of 433 patients aged 26–91 ($M = 62.39$; 41.8% male) receiving chemotherapy, who were enrolled in an observational study conducted between March 2005 and August 2009. Cancer diagnoses included lung ($N = 153$), prostate ($N = 127$), and gynecologic ($N = 153$). **RESULTS:** For the first post-chemotherapy visit, intraclass correlation coefficients were moderate for fatigue (0.52), dyspnea (0.75), nausea (0.55), vomiting (0.50), diarrhea (0.63), constipation (0.48) and neuropathy (0.73). The average time between evaluations was 70.42 minutes (range 67.97–72.88). These values were stable over up to six subsequent visits and did not differ based on age, gender, or elapsed time between evaluations. **CONCLUSIONS:** Given the short period of time and lack of interventions between reporting time points, the most likely cause of this lower than expected agreement between different clinicians is limited reliability of clinician reporting of this information. This finding has implications to clinical trials, as it brings into question the reliability or accuracy of symptom safety information. The investigators are currently evaluating patient-reported outcomes as an alternative and potentially more reliable method for collecting this information.

PCN4

INSULINS AND RISK OF CANCER AMONG TYPE 2 DIABETICS: A SYSTEMATIC REVIEW

Lu Z, Weiss Smith S
University of Maryland School of Pharmacy, Baltimore, MD, USA

OBJECTIVES: There have been reports which suggest that insulin glargine use may contribute to increased cancer risk in some type 2 diabetic populations, in addition to the fact that diabetes mellitus is also associated with certain types of cancer. Therefore, the objective of the present study is to conduct a review of published studies on insulins and the risk of cancer in patients with type 2 diabetes and summarize the findings. **METHODS:** Several databases such as Medline and PubMed were used for publication searching. Key words included insulin, tumor, cancer, type 2 diabetes, and specific insulin names such as glargine, lantus, lispro, aspart, etc. Only English language literature was considered for articles looking at the increased risk of cancer among type 2 diabetic patients using insulins. **RESULTS:** About 30 articles were selected, among those, 4 studies were conducted in humans using secondary database. All were historic cohort studies, and three used Cox regression for analysis. Two articles established a positive association between cancer incidence and insulin glargine, while the other two found no association. Three studies also showed that several insulins other than glargine are not associated with an increased risk of cancer.